Community Energy Initiatives - RES-338-25-0010

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Data description

This project was funded by the Economic and Social Research Council, under Sustainable Technologies Programme.

Research context
Arising from qualitative interviews with national and regional stakeholders reported elsewhere, and scrutiny of a database of over 500 UK community renewable energy projects devised as part of the research project, data was collected in six small-scale, rural settlements where community renewable energy projects had been successfully implemented, three in Wales (Llanwyddn, Moel Moelogan and Bro Dyfi) and three in the North of England (Kielder, Falstone and Gamblesby) between June and September 2005 (see figures 1 and 2). The rationale for collecting data in two 'regional' areas of the UK was to enable the identification of wider political and institutional factors shaping the emergence of the projects, reflecting the interdisciplinary nature of the project as a whole.

Figure 1: Locations of community energy projects in Wales and North England

The projects were intended to reflect a variety of renewable resources (wind, solar, geothermal energy and biomass), technologies for heat and power generation (wind turbines, solar panels, ground source heat pumps and wood boilers), scales of development (from single building scale, through local heat networks to a grid-connected wind farm), spatial location and institutional structure, yet were intended to be similar in having successfully installed renewable technology, and reported high levels of community involvement or beneficial outcomes in each place, as indicated by materials produced by the

project organisers. The project at Moel Moelogan was distinctive in having been recognised as a 'best practice' example of community renewable energy. Key aspects of each project are summarised in table 1.

Table 1: Key aspects of the six community renewable energy projects

Location	Technology context	Institutions	Funding	Responses
Llanwyddn	Biomass district heating network linking school and community centre plus 19 local houses	Public-private partnership	£375,000	34/100
Moel Moelogan	3 grid connected 1.3MW wind turbines (phase 1), later increased to 11 (phase 2)	3 local farmers	£2.6 million	51/150
Bro Dyfi	One 75kW wind turbine, grid connected	Committee-co-operative	£83,555	32/100
Kielder	Biomass district heating network linking school, youth hostel, 6 houses, workshop and castle	Public sector, local council	£630,000	38/135
Falstone	Solar photovoltaic panel and biomass boiler in village shop, tea rooms and visitor centre	Public sector partnership	£250,000	26/100
Gamblesby	Ground source heat pump for renovation project on village hall	Village hall committee	£42,100	27/ 91

Data collection and analytic strategy
Interviews and questionnaires were used to collect data in each location. Interviews were conducted with local stakeholders and individuals involved in instigating, supporting and opposing the projects. Questionnaires were distributed to local residents, the data from which forms the main basis of this paper. Surveys with covering letters (translated into the Welsh language for Welsh case studies) were delivered by project researchers to each house in the village or target area, except in the case of Gamblesby, when due to researcher illness, surveys were part-delivered and part-posted to local residents.

The survey was designed with a mixture of open-ended and closed (both binary and likert-type 1-5) response formats to questions. Sections of the survey addressed: socio-demographic details, project involvement; beliefs about the project; environmental beliefs and worldviews, and social identification with the community. Specifically, 20 items were intended to capture project beliefs, and were based upon policy documents (DTI, 2006) and academic literature (e.g. Slovic, 1999, Zoellner and Schweizer-Ries, 2005), concerning issues such as enhanced awareness, trust, certainty of outcome, control over decisions taken and fairness. Due to space limitations, values were not measured; however, environmental worldview was measured using a10 item 'New Ecological Paradigm' scale (Dunlap and VanLiere, 2000) and climate change-related environmental beliefs were measured using 6 items about awareness of consequences, ascription of responsibility and

moral norms at both personal and community levels of analysis, drawn from Stern and colleagues' Value-Belief-Norm theory (1999). Social identity, contextualised in the respondent's relation to the local community, was measured using 4 items concerning belonging, pride, communication and participation, drawing on previous work by Bonaiuto, Breakwell and Cano (1996). For measures of project beliefs, NEP, environmental beliefs, norms and social identification, respondents rated their level of agreement with each statement on a scale from 1 to 5, representing 'strongly disagree' to 'strongly agree'.

Sample:
Of 676 distributed, 208 completed questionnaires were returned, representing an overall response rate of 31%, which varied little across the six places. The sample consisted of 95 males and 107 females (with six missing values). The age profile indicated a predominantly older sample, with few respondents aged under 35 (approx 10%), most respondents aged over 55 years (47%), and 28% of respondents indicating that they were 'retired'. Length of residence in the locality averaged 24 years and ranged from 6 months to 80 years; the majority were owner-occupiers (75%) and lived in detached homes (55%). In terms of national identification, the most common labels used by participants were Welsh (30%), English (35%) and British (28%). Across the six projects, there was little variation in age or gender profiles in comparison to the sample overall.

Devising quantitative measures:
Principle components factor analysis (PCA), using oblique rotation, was used to create scale measures from items intended to measure New Ecological Paradigm (NEP), environmental beliefs and norms, and social identification. For NEP items, PCA produced a two-factor solution, explaining 48% of variance. An additive scale of 5 items concerning pro-science and technology beliefs ('dominant social paradigm' or DSP) had an alpha reliability of 0.76; a second scale of 5 items reflecting concern for nature ('new ecological paradigm' or NEP) had an alpha reliability of 0.61. The two-factor structure for this scale replicates previous applications of the NEP items (e.g. Wall, Devine-Wright and Mill, forthcoming). For environmental beliefs and norms, a PCA was undertaken on the six items, producing a two-factor solution with 3 items at the personal level consequences, responsibility and moral norms (alpha 0.77) and 3 items at the community level (alpha 0.72). In each case, items capturing normative beliefs loaded highest on each factor. Finally, PCA produced a single factor social identity scale, consisting of the four items, with an alpha reliability of 0.78. Specific items used in each scale are listed in full below.

Scale measures

a. Environmental worldview

Dominant social paradigm:
Science will help us live without conservation of species
Making changes to the natural environment rarely causes serious problems

Humans were created to rule over nature
There are no limits to growth for nations like the UK
Technology will solve many environmental problems

New ecological paradigm:
The earth is like a spaceship with limited room and resources
The balance of nature is delicate and easily upset
Exploitation of resources should be stopped
One of the most important reasons for conservation is to preserve wild areas
Plants and animals do not exist primarily for human use

b. Climate related beliefs and norms at personal and collective levels

Personal level items:
I feel a personal obligation to do whatever I can to prevent climate change
I feel it's my personal responsibility to prevent climate change
In general, I think that climate change will be a very serious problem for me and my family

Collective level items:
Local communities should not take action to prevent climate change (recoded)
Local communities have some responsibility to prevent climate change
Climate change is not a serious threat to my community* (recoded)

c. Social identification:

I feel a sense of belonging with the community
I feel a sense of pride in the community
I feel that I can participate fully in community activities
I feel that I cannot communicate my own needs within the community effectively (recoded)

References:

Bonaiuto, M., Breakwell, G.M and Cano, I. (1996) Identity processes and environmental threat: The effects of nationalism and local identity upon perception of beach pollution. *Journal of Community and Applied Social Psychology*, 6, 157-175.

Department of Trade and Industry (2006) *The Energy Challenge. Energy Review Report 2006*. Department of Trade and Industry, London.

Dunlap, R., Van Liere, K., Mertig, A., Catton Jr, W. and Howell, R. (2000) Measuring Endorsement of the New Ecological Paradigm: A Revised NEP Scale. *Journal of Social Issues,* 56(3), 425-441.

Slovic, P. (1999). Trust, emotion, sex, politics and science: Surveying the risk-assessment battlefield. *Risk Analysis*, 19(4), 689-701.

Stern, P.C., Dietz, T., Abel, T., Guagnano, G. and Kalof, L. (1999) A Value Belief Norm Theory of Support for Social Movements. *Human Ecology Review*, 6(2), 81-97.

Wall, R., Devine-Wright, P. and Mill, G. (forthcoming in 2007) Comparing and combining psychological theories to explain environmentally significant behaviour: the case of commuting. *Environment and Behavior*.

Zoellner, J., Ittner, H. and Schweizer-Ries, P. (2005) *Perceived Procedural Justice as a Conflict Factor in Wind Energy Plants Planning Process*. Paper presented at the 6th Bi-annual Conference of Environmental Psychology, University of Ruhr: Bochum, September.

Energy in the Community

Gauging your Opinions

Thank you for agreeing to complete this opinion survey. It is designed to gauge your attitudes and opinions relating to a wide range of issues that concern [insert village name] including issues relating to the [insert project name].

It is funded by the Economic and Social Research Council (ESRC) based in Swindon, and is part of a large research project co-ordinated by De Montfort University, Staffordshire University and Northumbria University.

It is important to the research team that you answer as many questions as possible. This is because we want to compare as many questions as possible. This will help us give a more accurate view of everyone's views in [insert village name]. We would ask that one individual in the household completes the survey.

The results are of great use to both local and central agencies who are interested in how individuals perceive local energy initiatives and so you can be sure that the opinions you express here will not be written in vain. At no point in the survey are details required that could identify you. All responses are strictly confidential.

If you require further information about this questionnaire, please do not hesitate to get in touch. Your contact for the study is:

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Thinking about the [insert type of project] project in [insert place name];

How long have you known about the project?

……………………………………………………………………………………………………

How did you hear about the project?

……………………………………………………………………………………………………

……………………………………………………………………………………………………

Have you been involved in the project in any way? (Including attending any public
meetings)   YES ☐   NO ☐

If yes, how have you been involved?
……………………………………………………………………………………………………

……………………………………………………………………………………………………

If so, why? What were your motivations?

……………………………………………………………………………………………………

……………………………………………………………………………………………………

Have you made any direct contribution to the project, such as your time, money or skills?

YES   ☐   NO   ☐

If so, what kind of contribution was it?

……………………………………………………………………………………………………

……………………………………………………………………………………………………

Have you had an opportunity to express your views of the project?

YES   ☐   NO   ☐

If so, what was the opportunity?
……………………………………………………………………………………………………

……………………………………………………………………………………………………

When you first heard about the project, how did you feel about it?

……………………………………………………………………………………………………

……………………………………………………………………………………………………

Have your views of the project changed over time?   Yes ☐   NO ☐
If so, why?

……………………………………………………………………………………………

……………………………………………………………………………………………

What do you think the main aims of the project are?

……………………………………………………………………………………………

……………………………………………………………………………………………

Who has been involved in running the project?

……………………………………………………………………………………………

……………………………………………………………………………………………

Which organisations are involved in the project?

……………………………………………………………………………………………

……………………………………………………………………………………………

Do you think there have been, or will be, any positive outcomes of the project going
ahead?   (Please list any you can identify)

……………………………………………………………………………………………

……………………………………………………………………………………………

Do you think there have been, or will be, any negative consequences of the project going
ahead? (Please list any you can identify)

……………………………………………………………………………………………

……………………………………………………………………………………………

How effectively have local people been informed about the project?

……………………………………………………………………………………………

……………………………………………………………………………………………

Who do you think should be responsible for organising projects like this within the
community?

………………………………………………………………………………………..

What does 'community' mean to you?

……………………………………………………………………………………………………

……………………………………………………………………………………………………

Below are some statements about perceptions of the project. Please indicate how much you agree or disagree with each statement by ticking one of the boxes below;

	Strongly Agree	Agree	Neutral	Disagree	Disagree Strongly
I was motivated to become involved in the project	☐	☐	☐	☐	☐
I am in favour of the project	☐	☐	☐	☐	☐
I feel that my views have been taken into account about the project	☐	☐	☐	☐	☐
I feel a sense of pride in the project	☐	☐	☐	☐	☐
The project has helped bring the community together	☐	☐	☐	☐	☐
I feel personally responsible for the project.	☐	☐	☐	☐	☐
I do not feel a sense of trust in the organisations involved.	☐	☐	☐	☐	☐
I think projects of this type are important for addressing climate change	☐	☐	☐	☐	☐
The committee leaders have the capacity to drive the project forward.	☐	☐	☐	☐	☐
I think the setting up and development of the project has been carried out in a fair and open way	☐	☐	☐	☐	☐
The community as a whole has responsibility for the success of the project.	☐	☐	☐	☐	☐
When I first heard about the project, I was unsure it would succeed.	☐	☐	☐	☐	☐

	Strongly Agree	Agree	Neutral	Disagree	Disagree Strongly
I had access to decision making concerning the project.	☐	☐	☐	☐	☐
I feel that the project will not have an impact on climate change	☐	☐	☐	☐	☐
I had no ability to influence decisions made regarding the project.	☐	☐	☐	☐	☐
I feel a sense of trust in the project organisers.	☐	☐	☐	☐	☐
I think projects like this should be set up in other places	☐	☐	☐	☐	☐
The project has only gone ahead because of local community support and involvement	☐	☐	☐	☐	☐
I understand more about renewable energy as a result of the project	☐	☐	☐	☐	☐
I am more aware of climate change as a result of this project	☐	☐	☐	☐	☐
I feel more positive about renewable energy as a result of the project	☐	☐	☐	☐	☐

We would like to know more about your general attitudes towards the environment. This helps us to understand the reasons why people take part in certain activities. Please indicate how much you agree or disagree with these statements:

	Strongly Agree	Agree	Neutral	Disagree	Disagree Strongly
There are no limits to growth for nations like the UK	☐	☐	☐	☐	☐
Local communities have some responsibility to prevent climate change	☐	☐	☐	☐	☐
Making changes to the environment rarely causes serious problems	☐	☐	☐	☐	☐
Science will help us to live without conservation	☐	☐	☐	☐	☐
Humans were created to rule over nature	☐	☐	☐	☐	☐
I feel a personal obligation to do whatever I can to prevent climate change	☐	☐	☐	☐	☐

	Strongly Agree	Agree	Neutral	Disagree	Disagree Strongly
The balance of nature is delicate and easily upset	☐	☐	☐	☐	☐
The Earth is like a space ship with limited room and resources	☐	☐	☐	☐	☐
I feel it's my responsibility to behave in ways to prevent climate change	☐	☐	☐	☐	☐
Plants and animals do not exist primarily for human use	☐	☐	☐	☐	☐
Climate change is not a serious threat to my local community	☐	☐	☐	☐	☐
One of the most important reasons for conservation is to preserve wild areas	☐	☐	☐	☐	☐
Local communities should not take action to prevent climate change	☐	☐	☐	☐	☐
Technology will solve many environmental problems	☐	☐	☐	☐	☐
Exploitation of resources should be stopped	☐	☐	☐	☐	☐
In general, I think that climate change will be a very serious problem for myself and my family	☐	☐	☐	☐	☐

In this part of the survey we are looking at some of the reasons that people behave in the ways that they do and become involved in different activities. Please indicate how much you agree or disagree with these statements;

	Strongly Agree	Agree	Neutral	Disagree	Disagree Strongly
I feel that I can participate fully in community activities.	☐	☐	☐	☐	☐
If something looks too complicated, I will not even bother to try it	☐	☐	☐	☐	☐
I avoid trying to learn new things when they look too difficult	☐	☐	☐	☐	☐
When trying something new, I soon give up if I am not initially successful	☐	☐	☐	☐	☐

	Strongly Agree	Agree	Neutral	Disagree	Disagree Strongly
When I make plans, I am certain I can make them work	☐	☐	☐	☐	☐
If I can't do a job the first time, I keep trying until I can	☐	☐	☐	☐	☐
I feel a sense of belonging within The community	☐	☐	☐	☐	☐
When I have something unpleasant to do, I stick to it until I finish it	☐	☐	☐	☐	☐
When I decide to do something, I go right to it	☐	☐	☐	☐	☐
Failure just makes me try harder	☐	☐	☐	☐	☐
When I set important goals for myself, I rarely achieve them	☐	☐	☐	☐	☐
I feel that I cannot communicate my own needs within the community effectively.	☐	☐	☐	☐	☐
I do not seem to be capable of dealing with most problems that come up in my life	☐	☐	☐	☐	☐
When unexpected problems occur, I don't handle them very well	☐	☐	☐	☐	☐
I feel insecure about my ability to do things	☐	☐	☐	☐	☐
I feel a sense of pride in the community	☐	☐	☐	☐	☐
My life is determined by my own actions	☐	☐	☐	☐	☐
I am usually able to protect my personal Interests	☐	☐	☐	☐	☐
I can pretty much determine what will happen in my life	☐	☐	☐	☐	☐

Gender: Male ☐ Female ☐

Age: ……………………….

Your occupation: ……………………………………………………………………….

Is this Full-Time ☐ Part-Time ☐ Retired ☐

What is the occupation of the head of the household (if different):

………………………………………………………………………………………………

How many people live in your household?: ………………………….adults

………………………….school age children

………………………….children under 5

Are you a member of any community or environmental organisations and if so, which?

………………………………………………………………………………………………

………………………………………………………………………………………………

Which nationality would you consider yourself to be? (Please tick)

Welsh ☐ English ☐ Scottish ☐ Irish ☐ British ☐ Other ☐

How long have you lived in the community?...

How would you describe your home circumstances?

Owner-Occupier/ Mortgage ☐ Private tenant ☐

Council/ Housing Association Tennant ☐

How would you describe your home?

Detached ☐ Semi-detached ☐ Terrace ☐ Flat ☐